ATTACHMENT II

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LOUISIANA TECHNOLOGY INNOVATIONS FUND – SEMI-ANNUAL PROGRESS REPORT

[DATE]

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[This report is due on

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March 1 and September 1 each year. Limit the length of the report to three pages]

I   DEPARTMENT/AGENCY   **LSU/Computing Services**

II   **PROJECT TITLE / Log #   # 03/003**

III   **PROJECT LEADER**

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IV   **DESCRIPTION OF THE PROJECT**

LSU was awarded this project to develop a robust, scalable environment to accelerate and facilitate the evaluation and deployment of Linux services and applications within public-supported entities in Louisiana. The move to open standards and open source is changing the world of information technology in the public and private sectors and higher education. Linux, once considered "disruptive technology" by IBM, is the leading example of open source software that implements open standards. Linux is becoming widely available on multiple hardware platforms and is now an option for many proprietary applications. Linux combined with virtualization technology offers a possible opportunity to combat the growing cost of supporting burgeoning, complex information technology infrastructures and the increasing dependence on a proprietary software platform. Recently, Linux was characterized in Computer World as a "Microsoft license killer." Louisiana has been slow in embracing this emerging technology. The intent of this project is to maximize the opportunity to accelerate innovation with Linux, to limit dependence on proprietary systems and to focus on total cost of ownership issues.

V   **PROJECT STATUS**

    A.   Brief Summary

Several new virtual z/Linux machines are running in production mode. One of them is now hosting the main LSU web site. We've integrated user authentication on these with the campus Active Directory function to simplify password management. We're using SAN storage with SAMBA to provide Windows file services. Daily mirroring and monthly patch updates, combined with TSM nightly backups provide a high level of security. Planned infrastructure changes include upgrades to SuSE Linux V9 and z/VM V5.

    B.   Accomplishments

Since the last report dated September 1, 2004, we have added a FICON card to the z/800 mainframe's configuration. In October, we gave a brief presentation of the project at the CISD conference in Baton Rouge, going over the general architecture and its capabilities, available applications, and contact information for interested state agencies. In November we applied several recommended updates to various applications and utilities that come bundled with the SuSE operating system.

Also in November, we completed moving the LSU web site to a Linux virtual machine in the z/800's production LPAR. This web site hosts several hundred specialty sites for various departments, student organizations, and faculty members. We were able to integrate all of the support IDs for these sites with the LSU Active Directory for identity management and with the IMS/DB2 based central authorization system for overall tracking and integrity. Several Python modules had to be developed to complete the web site move and integration into this infrastructure. Web site response and performance under current loads appears to be fine.

We added an additional 100GB of SAN based storage from our HP array to one of the Linux virtual machines serving the LSU library with Windows compatible disk space using the SAMBA utility. This SAN storage bypasses z/VM virtualization and is accessed directly by the Linux machine.

We have tested the upgrade of SuSE V8 to V9 and discovered some documentation errors. After correcting, the upgrade of a test Linux virtual machine went smoothly. SuSE z/Linux V9 was integrated into our virtual z/Linux cloning utilities for new virtual machines and was added to our automated local mirror of the SuSE updates from the vendor.

We set up a virtual z/Linux image for McNeese University and loaded the SAKAI open courseware server package on it. It appears to run as advertised. We set up another image as a web site host for the statewide LONI project. New images for a project in the Sociology department and a web server for the Mass Communications department use the campus Active Directory services for authentication, minimizing the need for yet another password for the users of these systems. We added a Wiki plug-in to the Zope application hosting package on the English department's web server image.

We implemented the rsync utility to keep mirror images of key z/Linux systems on inexpensive Intel machines for emergency failover situations and consolidated some campus webcam functions onto the z/Linux LSU web site. z/VM V5 arrived and is targeted for installation and testing over the next couple of months. We've settled into a monthly schedule for updating all z/Linux images with the latest fixes.

We had some discussion and are planning to move to a virtual switching function available in z/VM to eliminate the need for a dedicated z/Linux router image in each LPAR. This will return the routing function for each guest LAN in z/VM to the campus networking infrastructure. We also exchanged information with DSS concerning their plans to use a spare IFL in their mainframe to set up a z/VM-z/Linux environment.

        C.   Problems Encountered/Action Taken or Planned

No major problems have been encountered. Some minor documentation issues with the SuSE V9 upgrade were quickly resolved.

        D.   Major Milestones (Original vs. Current Estimate)

Currently on target with the proposed schedule.

VI   **COST VS. BUDGET** - **Note – On budget per Amendment dated January 7, 2004.**

Category	Budgeted	Actual	Projected Surplus
A. Equipment			
B. Software			

C. Telecommunications

D. Professional/Contract Services

E. Other Costs

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Total Project Cost

VII ITEMIZED EXPENSES AND FINANCIAL OBLIGATIONS INCURRED DURING THIS REPORTING PERIOD

None during this period. The following summarizes the funding expenditures. There is a current balance in the fund of $10,430.

Description	Budget	Expenditure	Balance
Capital Outlays	(991,768)	956,343	(35,425)
Supplies	0	31,500	31,500
Operating Services	(8,000)	0	(8,000)
Travel	0	1,495	1,495
Totals	999,768	989,338	(10,430)